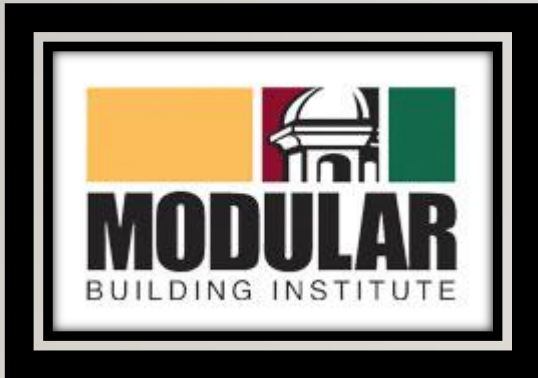


HOUSING AFFORDABILITY & INNOVATION

Presented By The Virginia Housing
Technology Group



THE HOUSING TECHNOLOGY GROUP: WHO WE ARE



THE HOUSING TECHNOLOGY GROUP: OUR FOCUS

- Virginia has a shortage of housing affordable to a substantial share of households.
- Statewide, one in three households is cost burdened, spending more than 30 percent on their income for housing.
- Nearly 1 in 10 households are severely burdened, paying more than 50% of their household income for housing.
- Virginia will need to house over 350,000 new workers in the next 10 years.

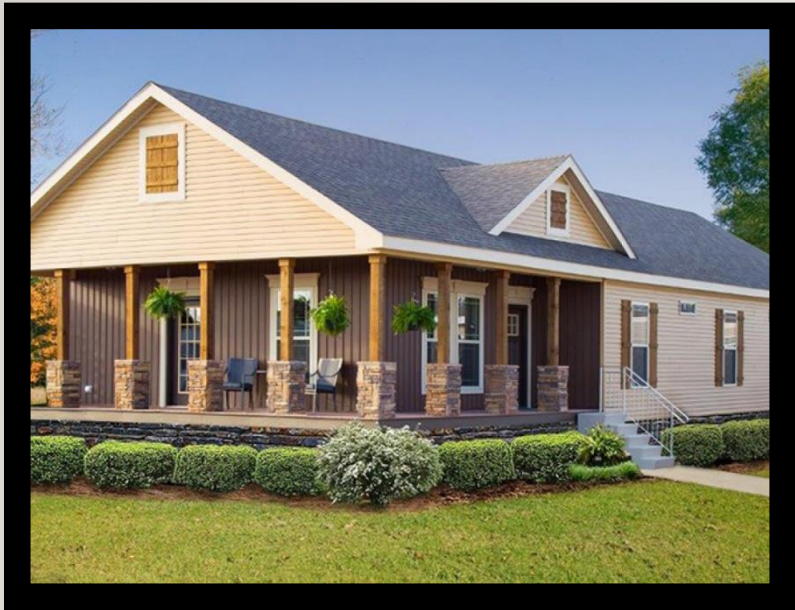
LEARNING TO BUILD A PATH TO SUCCESS

- Training and educating people in the residential housing industry is the best way to introduce changes needed to the industry.
- Proactive and decisive planning and policy that supports workforce housing and embraces technology will make housing a competitive advantage in the state.

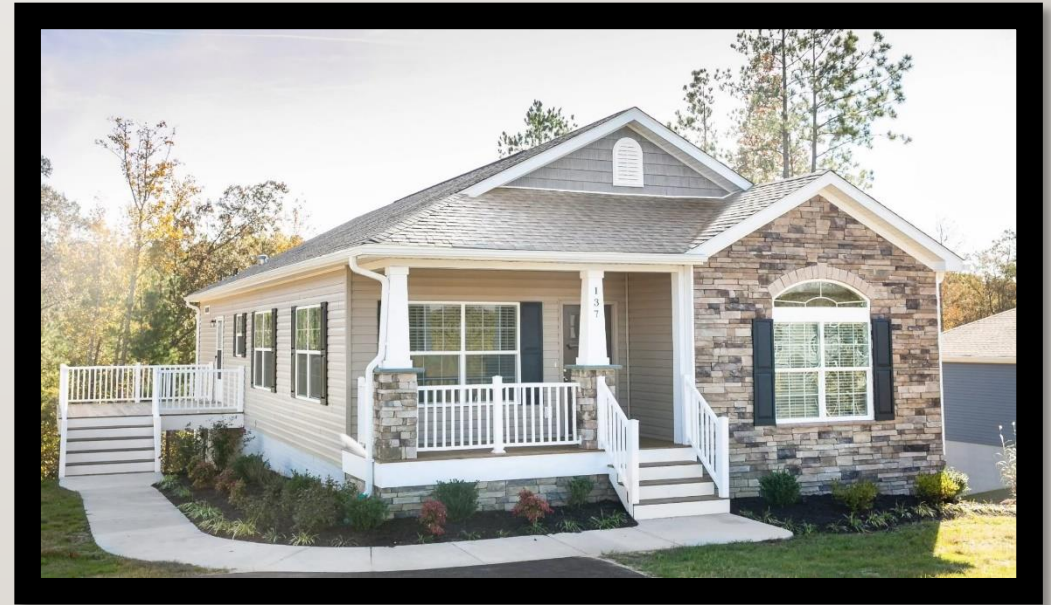


NEW BUILDING TECHNOLOGIES

MODULAR HOUSING



MANUFACTURED HOUSING



MODULAR HOUSING

- Modular describes a construction process, not necessarily a product itself.
- Modular homes and buildings are constructed at off-site factory controlled locations out of the elements, transported, and assembled to create the complete home or building.



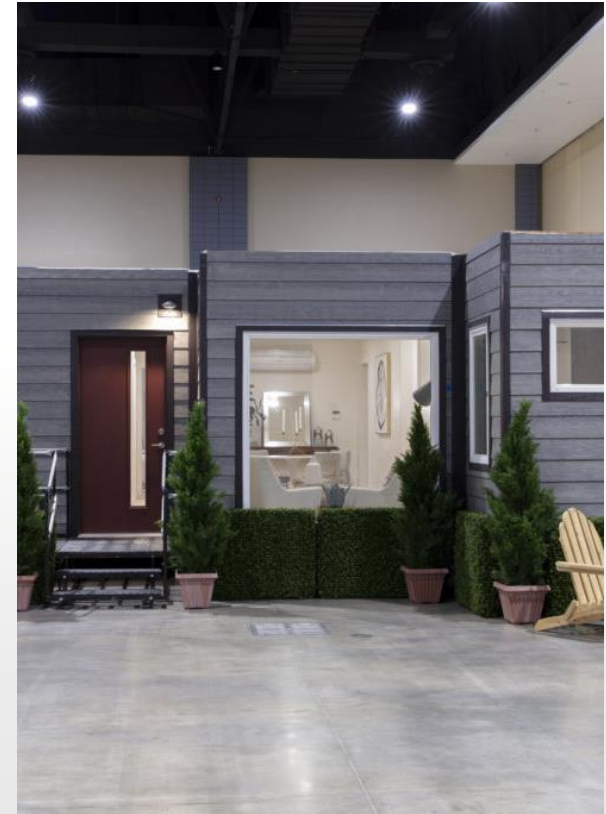
MODULAR BENEFITS

- Modular homes and buildings are constructed to the same state and local building codes as those that are conventionally constructed. They are regulated at the state level through DHCD.
- Studies show that modular homes are safer in disaster prone areas.



MODULAR HOMES: REPURPOSED SHIPPING CONTAINERS

- The repurposing of shipping containers as housing has become a hot topic in housing innovation. These container houses serve as modular blocks that are put together on site.
- VHDA, in partnership with the repurposing company indieDwell, brought the repurposed shipping container home seen on the right to the Housing X Conference. This particular home is set to be sold to a low income family in Richmond by Project Homes in the near future.



MANUFACTURED HOUSING AND ZONING

- Manufactured housing is built to a nationally approved standard, however this form of housing is often not allowed in a locality due to zoning and land use regulations.



MANUFACTURED HOUSING BENEFITS

- These homes can be placed on permanent foundation, allowing homebuyers to theoretically qualify for conventional mortgages, however some challenges do still remain. Efforts such as the Choice Home appraisal program are being pursued in order to solve these problems.
- They are largely energy efficient, durable, and attractive, but are avoided due to misconceived preconceptions and old stigmas.



STRIDES IN MANUFACTURED HOUSING

- VHDA has been working closely with the city of Danville to realize a manufactured housing district. The aim is for this new district to incorporate between 5 and 6 installations.



PANELIZED CONSTRUCTION

- A panelized system incorporates construction techniques that use advanced technology, quality materials, and a controlled work environment to build homes.
- Constructed indoors, carefully delivered, and installed.
 - The home's essential structural components are constructed in a climate controlled facility and carefully loaded on a truck to deliver to the home site.
 - Once at the home site, the shell of a panelized home can be erected and made weather tight in a matter of days.

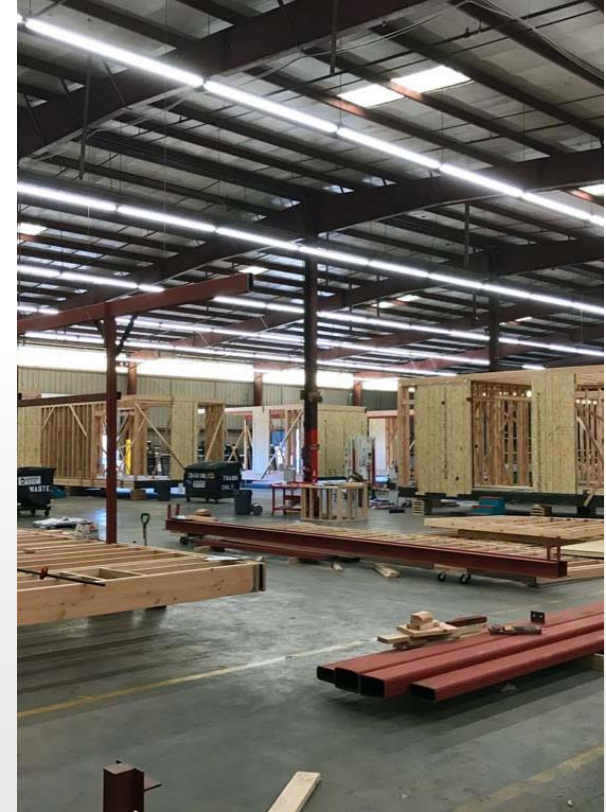


PANELIZED CONSTRUCTION BENEFITS

- Timing
 - Avoid weather delays
 - Less job site disturbance
 - 60% reduction in framing time (376 hours to 152 hours)
- Environmentally friendly
 - Less material used
 - Only 5% construction waste
 - 30% less material used (20,643 bd ft to 15,052 bd ft)
 - Precision construction of panelized homes is more energy efficient

PANELIZED CONSTRUCTION: FURTHER BENEFITS

- Cost Control
- Safety – Fewer jobsite risks, fall protection, nailing safety
- Code Compliant: Panels are constructed to meet code before being shipped from the factory.



VIRGINIA HOUSING RESEARCH CENTER'S “HOUSING CAMP”

- Virginia Tech's Virginia Housing Research Center has created a new conference program: Housing Camp.
- Housing Camp brings people together across all areas of home building for a small conference with speakers from the trade. A series of modules that can be taken remotely will become available to camp attendees for several weeks following the conference. At the end of the module period, these attendees will be faced with a challenge to solve. Ultimately, attendees will receive the opportunity to pitch their problem solution to investors.
- The first camp is scheduled to begin May, 2020.



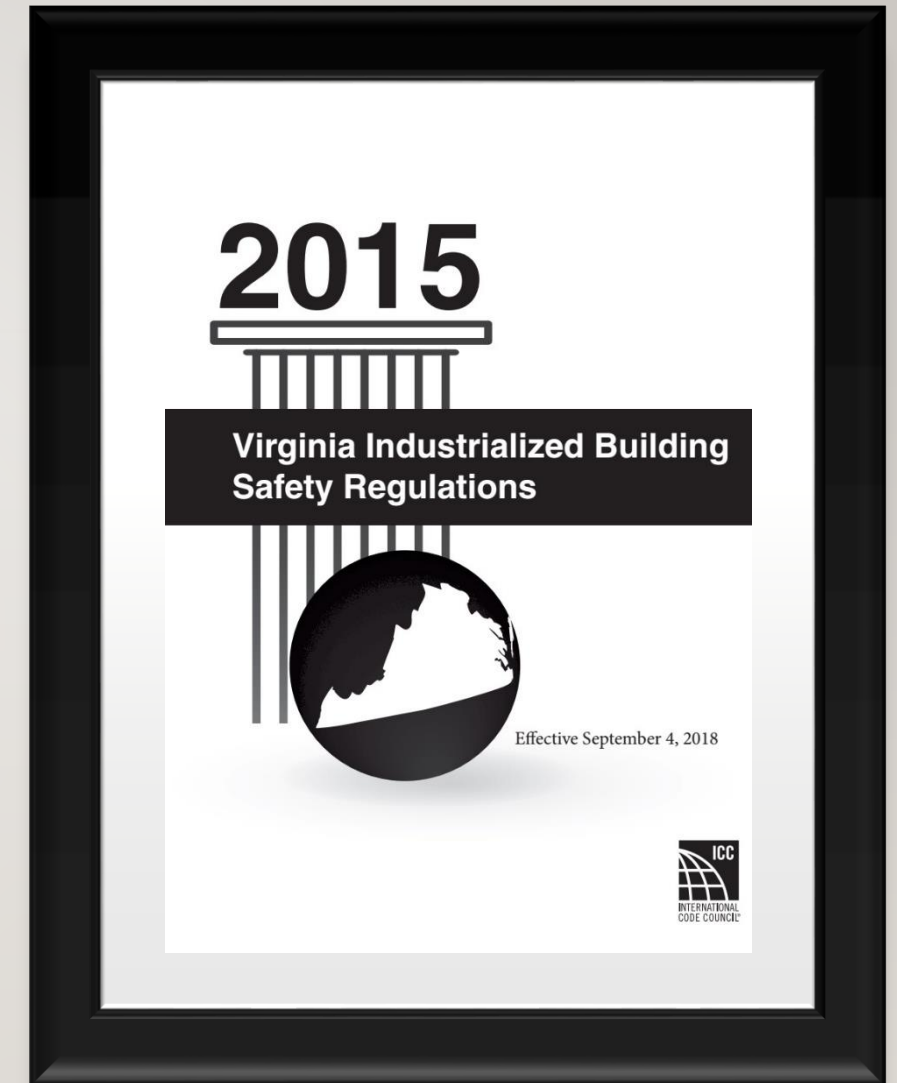


**VIRGINIA DEPARTMENT OF HOUSING
AND COMMUNITY DEVELOPMENT**
Partners for Better Communities

**DHCD HAS BEEN WORKING TO INCORPORATE NEW
TECHNOLOGY INTO THE BUILDING CODE DURING THE
2018 CYCLE TO SUPPORT AFFORDABLE HOUSING.**

PANELIZED CONSTRUCTION

- The Industrialized Building Safety Regulations have been updated to include off-site panelized construction.
- This will permit faster approvals and clear requirements for this quickly growing off-site construction process.



TINY HOMES

- A compliance path alternative for “tiny homes” was incorporated into the upcoming 2018 USBC.
- Also included was language from the 2021 codes to bring further clarity to this construction method.



SHIPPING CONTAINERS

- Shipping container guidelines for reuse published by the International Code Council was also evaluated during the code update process and approved.
- These guidelines will provide clear requirements for those wishing to reuse shipping containers as construction elements in both residential and commercial applications.



ACCESSORY DWELLING UNITS

- Still under development for the 2018 code update process are changes that would incorporate Accessory Dwelling Units, such as a smaller home beside your main home.



- It is important to note that some of these changes to the code will still require zoning approval in order to fully recognize the potential benefits to affordable housing. These changes assure that safety and quality construction apply to these advancing technologies.

OFFSITE CONSTRUCTION AND VIRGINIA'S AFFORDABLE HOUSING STOCK

ANDREW P. MCCOY, PhD,

Virginia Center for Housing Research

Virginia Tech

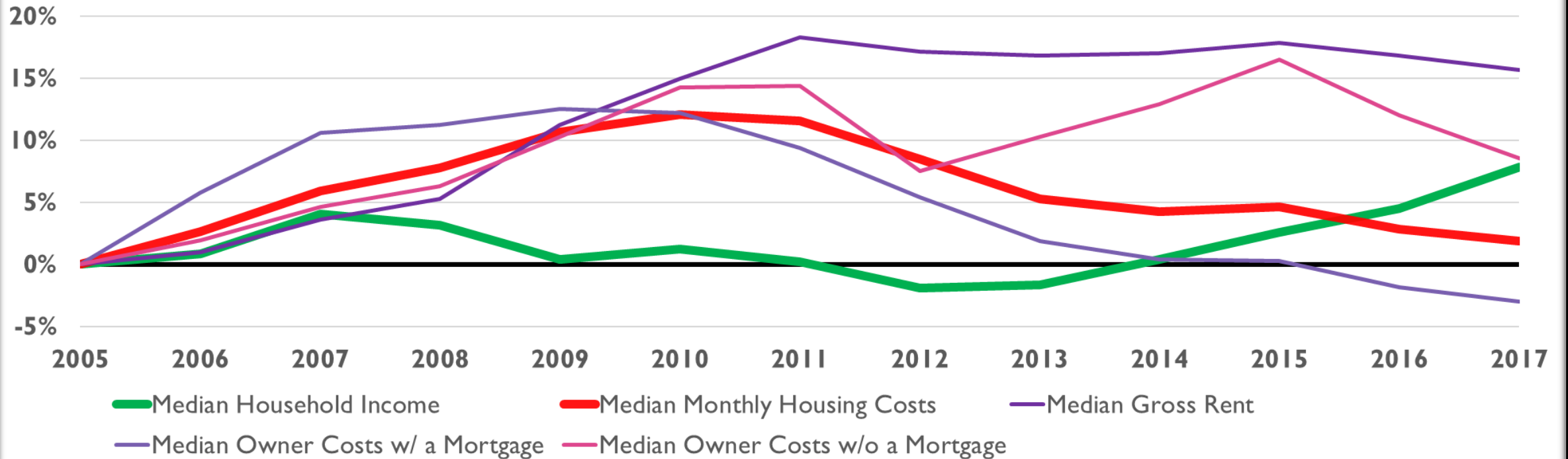


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HOUSING AFFORDABILITY: VIRGINIA

Change in Real Household Incomes and Housing Costs

Source: VCHR Tabulation of 2006-2017 ACS, 1-year Estimates



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HOUSING AFFORDABILITY TRENDS: US

Concerns

- Unresponsive markets
- Damaged construction industry
- Opportunities for wealth building
- Affordability improvement among professionals may cause the ever expanding affordability crisis to be de-emphasized.



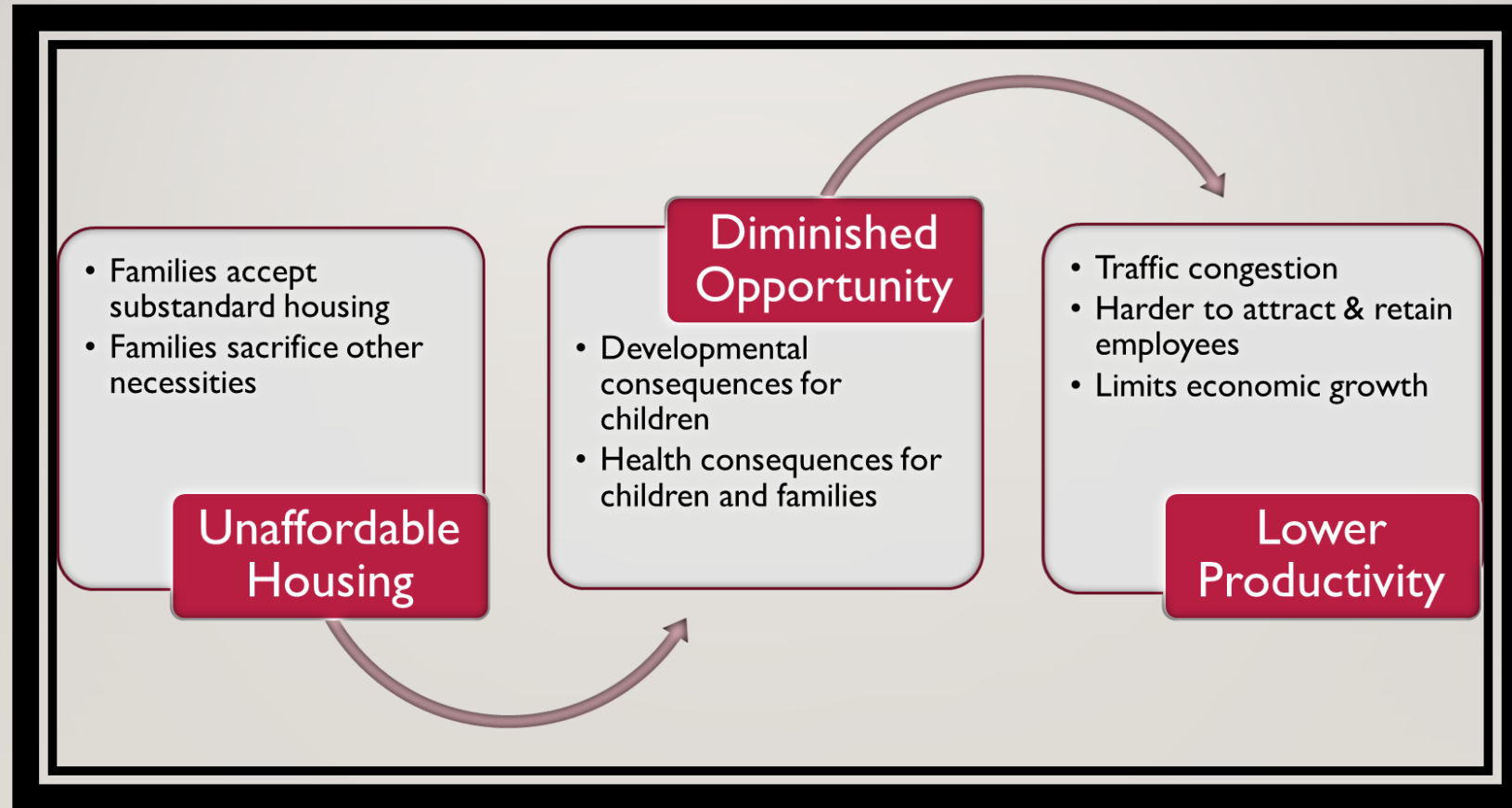
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HOUSING AFFORDABILITY TRENDS: REGIONAL

- Mid-Atlantic
 - Higher-costs
 - More active initiatives to address affordable housing
 - More mature programs
- Southern
 - Lower-costs
 - Just beginning to dig in and find culturally/politically acceptable ways to address housing issues

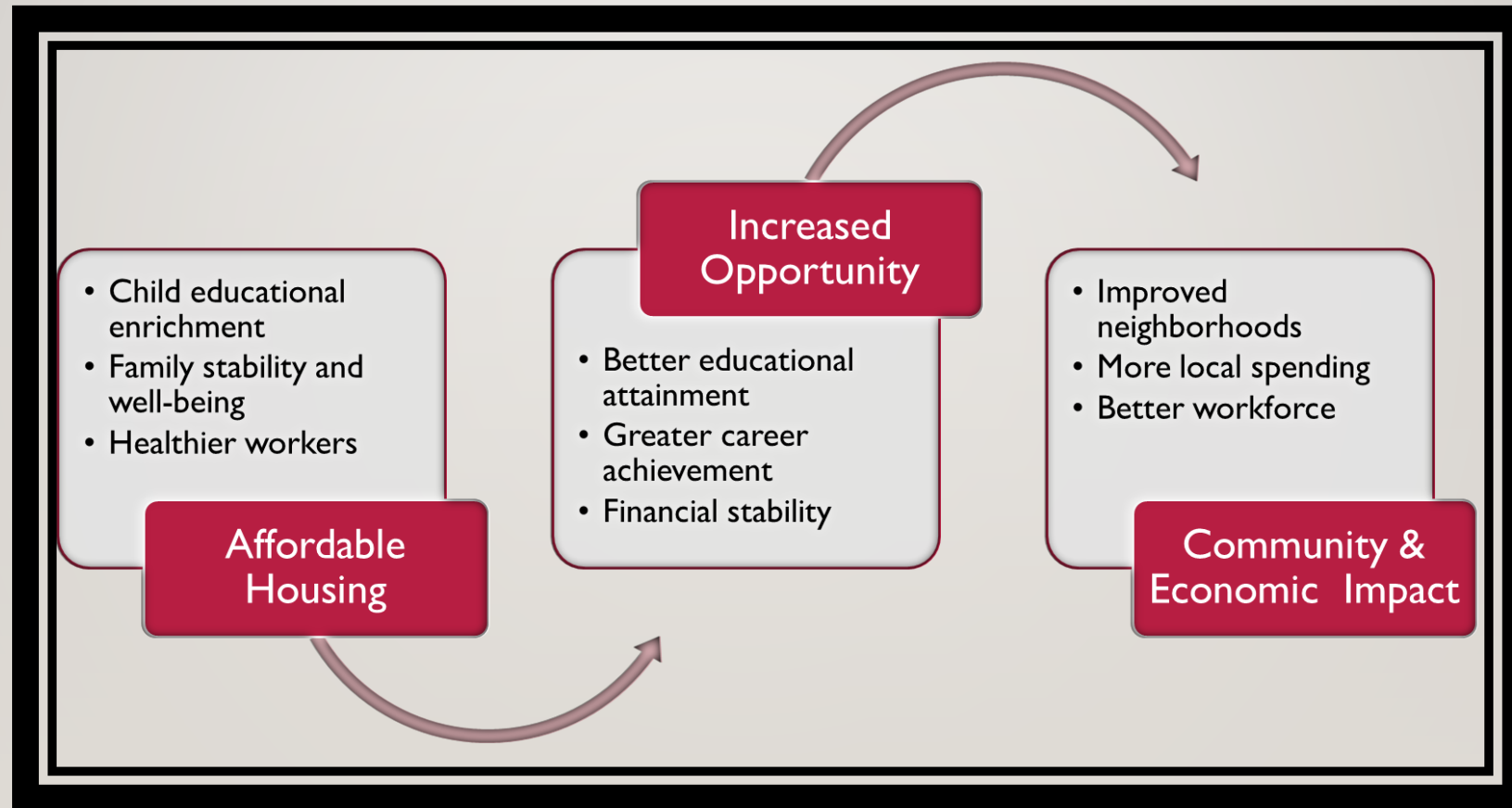
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HOUSING & ECONOMIC OPPORTUNITY³



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HOUSING & ECONOMIC OPPORTUNITY³



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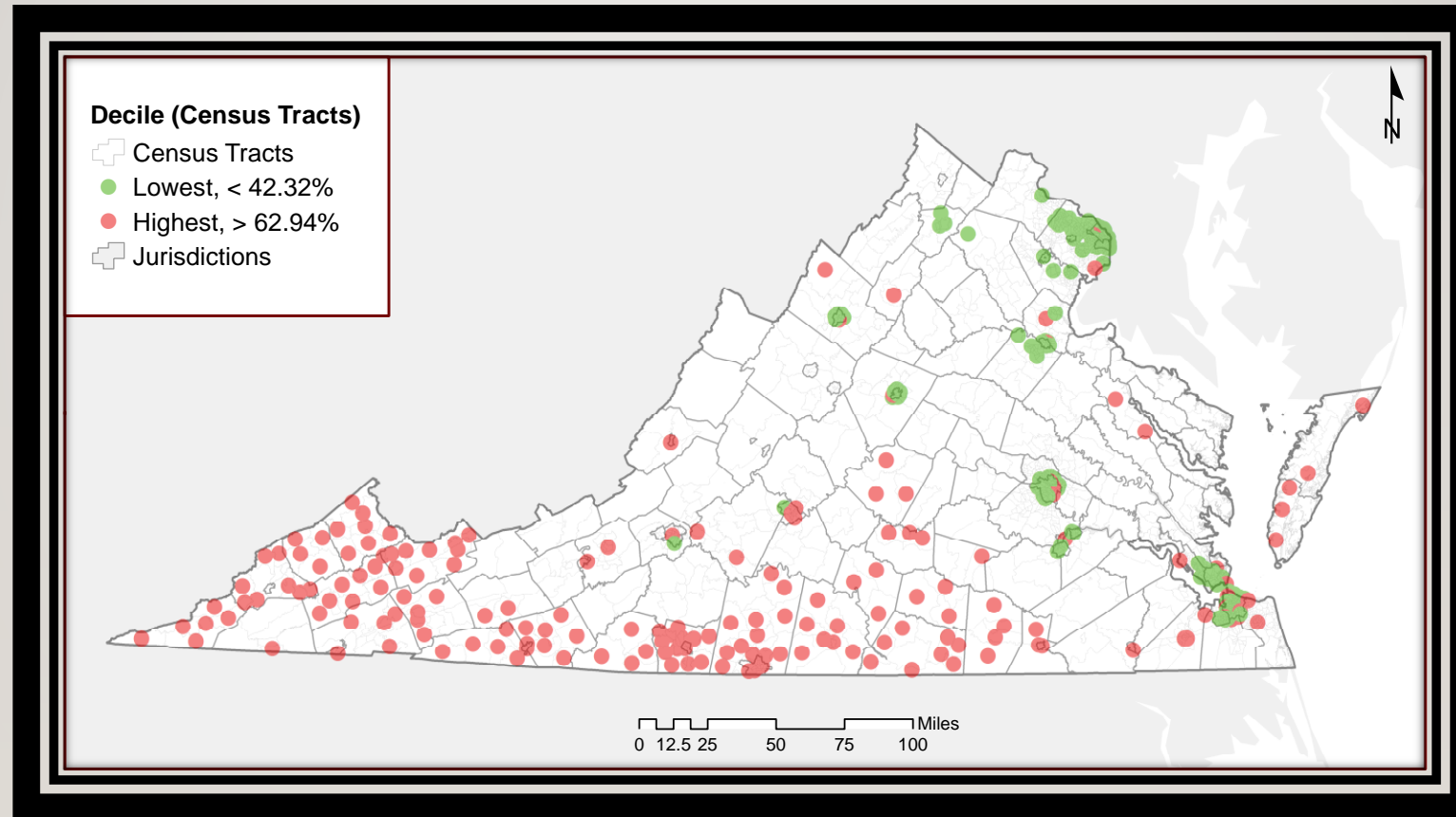
HOUSING & THE WORKFORCE

- Affordable, appropriate housing helps attract and retain employees and sustain employment growth, business attraction, and business expansion.
 - Virginia will need 225,600 net new housing units to accommodate new employees by 2024.²
 - In a high-growth, highly competitive future, Virginia may need to add more than 700,000 housing units by 2030.²
- High housing + transportation cost burdens for households are negatively correlated with economic growth and performance metrics.²
 - Nearly 1 in 3 households in Virginia need more affordable housing⁴



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HIGHEST AND LOWEST HOUSING + TRANSPORTATION COST BURDEN²



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THE WAY FORWARD

1. Enacting policies to **support workforce housing** in the face of federal reduction of funds,
2. encouraging **location efficient development**,
3. **better establishing local markets**, in terms of policies and housing production costs, and
4. embracing **housing production technology**.



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NO FUNDING, NO PARKING

- Local community responsibility for the housing market is increasing
 - One reason: Federal reduction of funds
- Current zoning and development regulations present major barriers
 - One example: Parking requirements
- **Bottom line:** Local governments are in the best position to ensure that housing becomes more appropriate and more affordable.



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THE CHANGING ECONOMY⁷

- Sharing
 - Cars, houses, offices, services,..., etc.
- “side-gigs”
 - And full-time gigs
- Remote workers
 - They’re becoming less remote
- What does it mean for housing?



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INSTRUMENTATION

- Demand for technology to be part of our environment, more than just a tool
 - Security monitoring and entertainment
 - Home performance monitoring
 - Health monitoring
 - Virtual connections
 - Sophisticated working and learning spaces

